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23 March 1982

Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

No. 208

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LAOS-USSR SPACE COMMUNICATIONS LINK INAUGURATED

PM081131 Moscow PRAVDA in Russian 1 Mar 82 p 4

[Interview with G. Kudryavtsev, first deputy minister of communications, by L. Chausov, in Moscow, date not given, and Ye. Fadeyev dispatch: "Moscow Vientiane Space Bridge"]

[Excerpts] Vientiane--An antenna system soars into the blue tropical sky: the capital of the Lao People's Democratic Republic [LPDR] has acquired a direct link with Moscow. "Lotus-2"--a ground station of the "Intersputnik" space communications system--presented as a gift to the Lao people by the Soviet Union, has been commissioned. It was erected by construction workers of the two fraternal countries. Henceforth reliable telephone and telegraph communications and the reception of television broadcasts from the USSR and other socialist community countries will be ensured via space.

And so a "window on the world" from space has been flung open. The first television screens have lit up bringing people news from the land of the Soviets and other fraternal states. In concluding my reportage I should like to say to those who are reading these lines: This is the first time your correspondent has sent an item to the editorial office by telephone. The "Intersputnik" space link has started work. [end of Fadeyev dispatch]

Specialist's Commentary

On the eve of the commissioning of the space communications station in the LPDR, PRAVDA correspondent L. Chausov talked in Moscow with G. Kudryavtsev, USSR first deputy minister of communications, about the development of the international "Intersputnik" organization. Here is what he said:

The ramified system of communications which henceforth will include "Lotus-2" is an organic part of "Intersputnik." The technical side of the matter has been reliably ensured by the efficient functioning of the Soviet space communications complex. Here satellites in the "Gorizont" series are being used with the internation ["statsionar"] designation.

The new "Lotus-2" station situated in Laos is of the same type as the station constructed in Vietnam with the USSR's technical assistance. Similar space communications ground stations on the territory of other socialist countries are helping to satisfy better and better the growing requirements for contacts and the exchange of information within our community. The number of "Intersputnik" members is growing. Thus its system has already been joined by Afghanistan where a satellite communications station has already been commissioned and will also serve the development of international contacts. It should be noted that "Intersputnik" is an organization open to all countries anxious to use space for peaceful purposes, for the benefit of mankind.

CSO: 5500/2141

DETAILS ON 'ATLANTIS' CABLE MEETING NOTED

Abidjan FRATERNITE MATIN in French 4 Feb 82 p 4

[Article by Sophie Chegaray: "On 1 August: Entry Into Service of 'Atlantis' Submarine Cable System"]

[Text] Having met since Tuesday, 26 January, at the Hotel Ivorie, the General Committee for the construction of the submarine cable from South American to South African and Europe completed its work last Friday [30 January]. According to a communique from the director general of INTELCI [International Telecommunications of the Ivory Coast], the meeting took place under the best conditions, and important decisions were reached, particularly concerning the maintenance of the system whose entry into service is provided for next August.

It was in July, 1979, that there was signed, between different countries of Africa, South America, and Europe, an agreement for the construction of a high capacity submarine cable to link these three continents by telephone. Called the "Atlantis System," this project includes 10 promoters: Argentina, Brazil, Great Britain, France, Federal Republic of Germany, Switzerland, Italy, Portugal, Senegal, and Ivory Coast.

This large-scale project will make it possible to establish or strengthen telecommunications between these three continents. The Ivory Coast, which is experiencing an ever-growing demand for international communications could not help but participate in such a project.

Recalculation of the Cost

The eighth meeting of the General Committee for the Construction of the Atlantis Submarine Cable System was held in Abidjan and was presided over by Magales, from Brazil. A number of points were on the agenda: the promoters first of all had to consider in connection with the financial problem a recalculation of the cost of construction, as this was regarded as necessary. Now amounting to about 53 billion CFA [African Financial Community] francs, the new investment budget needed to be adopted by the 10 promoters, clearly raising the question of the participation of each of the countries.

The General Committee furthermore considered the technical question of the progress of the work underway. In this connection it was able to note that the construction calendar had been respected by the two construction companies involved and that the tricontinental communications project could enter into service as of 1 August, as planned.

It is a British company, STC [Standard Telegraph and Cable Company], which has been charged with the laying of the cable between Brazil and Senegal, while the section between Senegal and Portugal has been entrusted to a French company. Of course, these two projects were previously opened to international bidding before the contracts were awarded.

In Case the Cable Is Cut...

Another important point was raised by the General Committee at its meeting in Abidjan: the eventual extension of the use of the Atlantis system to other countries which did not sign the initial contract. This principle and arrangements for the use of this large capacity cable led to extended discussions.

Finally, there remained the essential question of the use and maintenance of the Atlantis system. Who would take action in case of a cutting of the cable (an event which should always be considered)? On this point the members of the General Committee agreed on the principle of ordering a supplementary study providing for an emergency plan. After 4 days of intensive work, the representatives of the 10 promoting countries completed their work Friday evening [29 January].

On the previous evening [28 January] they were the guests of the city of Yamoussoukro. This included a visit to the city and its well-known facilities and also a visit to a pineapple plantation. These were the principal stages in this recreational day which let these visitors, who had come from three continents, to get an idea of development in Ivory Coast fashion.

The next meeting of the General Committee of the Atlantis system will be held in Switzerland in July, 1982.

5170
CSO: 5500/5968

BRIEFS

BAHRAINI-ROK NEWS AGREEMENT--An agreement was signed here today between the Gulf news agency [WAKH] and the ROK news agency YONHAP. The agreement was signed by Nabil Ya'qub al-Hamar, WAKH director general, and (Kim Seong Jin), YONHAP director general. Under this agreement, the two agencies will exchange news reports and disseminate them in the ROK and the Arab Gulf region. [GF091239 Manama WAKH in Arabic 0950 GMT 8 Feb 82 GF]

CSO: 5500/2152

BRIEFS

SATELLITE TO BE LAUNCHED--India's multipurpose satellite INSAT I is to be launched on the 8th of next month. It is designed to have a nationwide coverage of telecommunications, relay of radio and television transmissions and collection of meteorological data. This was stated by Prime Minister Mrs Gandhi in the upper house of Parliament today. Mrs Gandhi said INSAT I will be geostationary and will be in two parts--IA and IB. The first to be launched on the 8th of next month is IA. [Text] [BK111445 Delhi General Overseas Service in English 1330 GMT 11 Mar 82]

SATELLITE TO STUDY EQUATORIAL ATMOSPHERICS--The Vikram Sarabai Space Center [VSSC] at Tumba near Trivandrum in the southern state of Kerala today successfully launched a centour rocket to study the atmospheric conditions in the equatorial region. According to a VSSC spokesman, the purpose behind the launching is to study the electronic concentration about the equatorial. The rocket, which rose up to a height of 126 kilometers, carried a payload of 71 kilograms. This has been a joint effort of India, the Federal Republic of Germany and Austria. [Text] [BK111505 Delhi General Overseas Service in English 1330 GMT 11 Mar 82]

CSO: 5500/2152

CONSORTIUM FORMED TO INTRODUCE CABLE TELEVISION SYSTEM

Wellington THE EVENING POST in English 11 Feb 82 p 6

[Text]

Mr Gavin Ellis has been appointed manager of Cablevision NZ Ltd, a consortium formed to introduce a cable television system to New Zealand.

Mr Ellis was formerly a member of the editor's department of the "New Zealand Herald", published by a member of the consortium, Wilson and Horton Ltd.

The other partners in Cablevision NZ Ltd are Tolley Industries Ltd, Wellington-based cable manufacturers, and J Scott and Co Ltd, a Dunedin-based firm of timber importers.

Cable television — a multi-channel system which carries television signals into homes, hotels and business houses via coaxial cables — is expected to markedly increase the range of entertainment and information available on New Zealand television screens.

The system is well advanced in North America where up to 100 channels can be transmittd via cable. In Canada, cable television reaches 60 percent of homes and in the United States almost 30 percent of television set owners subscribe to a cable system.

A series of cable pilot schemes have been established in the United Kingdom and an inquiry into the introduction of cable services is under way in Australia.

CSO: 5500/9026

BRIEFS

DIFFERENTIAL TRANSFER TV STATION--On the highest peak at Yichun City inside Xinqing District on the summit of Laobai Mt., a differential transfer TV station has been set up. Text broadcasts were already carried out before Spring Festival. The picture was clear and the special effects relatively good. This differential transfer TV station has been funded by the four forestry bureaus of Xinqing, Hongxing, Dongfeng, and Wuyiling as well as by the Xinqing Lumber Processing Mill, Xinqing Electric Generating Plant, and the Wulaga Gold Mining Bureau. [By Wang Jiarong [3769 1367 2837]] [Text] [Harbin HEILONGJIANG RIBAO in Chinese 1 Feb 82 p 2]

CSO: 5500/4011

BRIEFS

TELECOMMUNICATIONS SATELLITE RESEARCH--Telecommunication satellites will be developed in the foreseeable future to remove blanket areas before the 1988 Seoul Olympic Games. Minister of Culture and Information Yi Kwang-pyo said yesterday the Ministry of Communications and the Korea Broadcasting System (KBS) have started preliminary research into the development of telecommunication satellites. In reply to lawmakers' questions in a plenary National Assembly session, Yi also said the government will reduce commercials on the state-run broadcasting system. The government acknowledges the need to create a large-scale national art museum to firmly establish the legitimacy of the nation, he said. The government has sent 17 different kinds of books to Korean residents in Communist China through third countries, and plans to send nonpolitical publications to Korean residents in other communist countries, he disclosed. [Text] [SK070243 Seoul THE KOREA HERALD in English 7 Mar 82 p 1]

CSO: 5500/2141

BRIEFS

NEW FM STATION--The Home Affairs Ministry has granted an FM braodcasting licence to Bermuda's newest radio station, VSB. Last night the station's manager Mr. Ron Evans said that now VSB would have to wait until the end of the month to hear whether it had planning permission to erect a tower at Boaz Island--and it could take a year before the FM station would begin broadcasting. Mr. Evans, however, would not say exactly what the station would broadcast if it gets onto Bermuda's airwaves. "I wouldn't answer that because ZBM would love to know. That's a secret--even my boss doesn't know what plans I've got in my head." But he did say that if his plans go through his FM station would be the only live FM station on the Island. He hopes that he can have an FM frequency parallel to their AM 1450 khz so that listeners would simply have to flick the switch to tune into FM. Meanwhile Government has deferred until the end of January next a decision on VSB's application for a second AM station [Hamilton THE ROYAL GAZETTE in English 4 Feb 82 pp 1, 3]

CSO: 5500/7523

MORE ON RADIO FREQUENCY CHANGE PLANS

PA251934 San Jose LA NACION in Spanish 16 Feb 82 p 10A

[Text] A plan designed to stop foreign radio penetration, especially in the northern part of the country, will be implemented by the Government Ministry as of 1 March.

The information was furnished by Deputy Government Minister Harry Wohlstein. He added that on that day an executive decree will be enforced to increase AM frequencies by multiples of 10.

According to the official, this will make available two frequencies that will be assigned to the church for broadcasting to the northern part of the country and to the Atlantic and Pacific coasts.

The purpose of this is to block so-called "radio penetration," especially of ideological and cultural programs from Nicaragua.

According to the deputy minister, in radio broadcasting there are no barriers and it is very easy to bring into Costa Rican homes programs that do not represent our national culture and customs.

The plan was set up following conversations with the National Chamber of Radiobroadcasting in coordination with the National Office of Radiobroadcasting.

Regarding the kind of programs that the CURIA will broadcast on those frequencies, there is an agreement that cultural and "popular" type programs will be given preference.

These frequencies will not be used for commercials or for business activities.

In conclusion, it was emphasized that it is necessary to take these measures because not only Nicaraguan, but also Cuban, Mexican and Honduran radio broadcasts are beamed toward Costa Rica.

CSO: 5500/2143

BRIEFS

SUBVERSIVES INTERFERING RADIO TRANSMISSIONS--The General Directorate of Radio and Television Broadcasting has confirmed that subversives have modulated frequency equipment with which they are interfering in the transmissions of the country's most important stations. A circular on this has been sent to the directors of the country's radio stations. As is known, unidentified individuals have interfered in the regular transmissions of some of the country's most important radio stations, including Radio Nuevo Mundo and Radio Cinco Sesenta. On Tuesday, shortly before 1300, there was interference during Radio Nuevo Mundo's transmission of the second edition of "The Independent" newscast. Yesterday afternoon, there was interference in the transmissions of Radio Cinco Sesenta. According to the reports obtained by our newsmen who immediately went to the studios of Radio Cinco Sesenta on 5th Avenue and 14th Street in Zone 1, the station had not been physically occupied. The station personnel said that a message different from the station's program suddenly came on in its frequency. [Text] [PA252258 Guatemala City Radio Nuevo Mundo in Spanish 1200 GMT 25 Feb 82]

FIVE RADIO STATIONS INTERRUPTED--Five radio stations of Guatemala City were interrupted again this weekend and messages against the government were broadcast. One of the affected radio stations was Radio Progreso. The others were Radio Nuevo Mundo, Radio Sonora, Radio Cinco Sesenta, and Radio Continental. All these radio stations had been interrupted before for the same purposes. In none of the cases, which took place yesterday and today, was there any attack on the studios of the radio stations. The guerrillas once again used a powerful modulated frequency transmitter to impose their signal on the affected radio stations. The interferences took place at different hours. The radio stations were broadcasting their regular program when all of a sudden antigovernment messages from the Armed People's Revolutionary Organization were aired on their frequencies. [Excerpts] [PA020437 Guatemala City Radio-Television Guatemala in Spanish 0400 GMT 1 Mar 82]

CSO: 5500/2145

THIRD SATELLITE GROUND STATION OPENS

GF020558 Kuwait ARAB TIMES in English 28 Feb 82 p 1

[Text] Kuwait, Feb 27--Kuwait today inaugurated its third satellite ground station, an official press release by the Ministry of Communications said. Like its two predecessors, the new 'earth station' is located in Umm Al A'ish, close to the border with Iraq.

Minister of Communications 'Isa Muhamad al-Masidi personally declared the station operational today in the presence of Undersecretary 'Abd ar-Rahman al-Ghunaym and other senior officials.

The new ground communications system is designed to cope with increasing demands on international communications between Kuwait and the rest of the world, it is being stressed. All the ground stations are linked to a network of satellites operated by INTELSAT (International Telecommunications Satellite Organization) founded in 1964. Kuwait had joined that organization in 1966.

The third station has been designed and built by Nippon Electric of Japan at a cost of KD2.7 million. Its initial capacity is 324 channels and its antenna is pointed to the Indian Ocean region satellite serving the countries of the region.

Ground stations dotted around the world serve as reflectors communicating signals of information to the orbiting satellites. Telephone calls, radio and TV broadcasts and other information can be conveyed by the satellite network. From the satellite, any information can again be re-transmitted to the ground stations.

CSO: 5500/2141

ADMINISTRATIVE COUNCIL OF INTELCI MEETS, REPORTS ON BUDGET

Abidjan FRATERNITE MATIN in French 16 Feb 82 p 3

[Article: "INTELCI: 8.5 Billion CFA Francs for 1981-82; First Meeting of Supervisory Council"]

[Text] The first meeting of the Supervisory Council of the International Telecommunications Company of the Ivory Coast (INTELCI) was held on Friday, 12 February, in the conference hall of the Ministry of Posts and Telecommunications, with its chairman, Minister of Posts and Telecommunications Kouassi Apete, convening the session.

The presence of many well-known personalities was noted, including that of Amadou Thiam, minister of information; the representative of the minister of economy and finance; the director general of the Autonomous Financial Fund [Caisse Autonome d'Amortissement]; the director general of telecommunications; etc.

The agenda of this council meeting included the following: examining the report of the 24th meeting of the Administrative Council, which took place on 10 December 1981; examining new administrative and management structures for INTELCI; examining the draft budget for fiscal year 1981-82.

This was the occasion for Tanoh Germain, chairman of the Administrative Council of INTELCI, to present documents concerning points included in the above agenda. After this presentation the council adopted the conclusions of the 24th meeting of the Administrative Council and approved the budget for fiscal year 1981-82, which balanced receipts and expenditures at 8.5 billion CFA [African Financial Community] francs, as well as the new administrative structure of INTELCI.

Furthermore, the council then considered the nomination of commissioners to examine the accounts of the company, on the one hand, and on the other hand recommended to the Administrative Council and to the Directorate General of the Autonomous Financial Fund that they ensure careful implementation of the budget for fiscal year 1981-82, regarding the general policy of economic recovery set out by the party and the government.
5170
CSO: 5500/5698

BRIEFS

MORE ON TV ALLOCATIONS--Commissioners for Information from the 12 states controlled by the UPN, NPP and factions of the PRP and GNPP have called on the Federal Government to allow states to be represented on the TV channels allocation committe. In a communique at the end of their one-day meeting in Benin on Friday, the commissioners said that as an interim measure, the Federal Government should urgently allocate more UHF channels to all states. They asked the Federal Government to take urgent steps to constitute the six zonal boards of the NTA to ensure effective direction and management. The conference endorsed the stand of chairmen of radio broadcasting stations in their states who were opposed to the proposed establishment of FRCN stations in the states. [Text] [Kaduna NEW NIGERIAN in English 23 Feb 82 p 16]

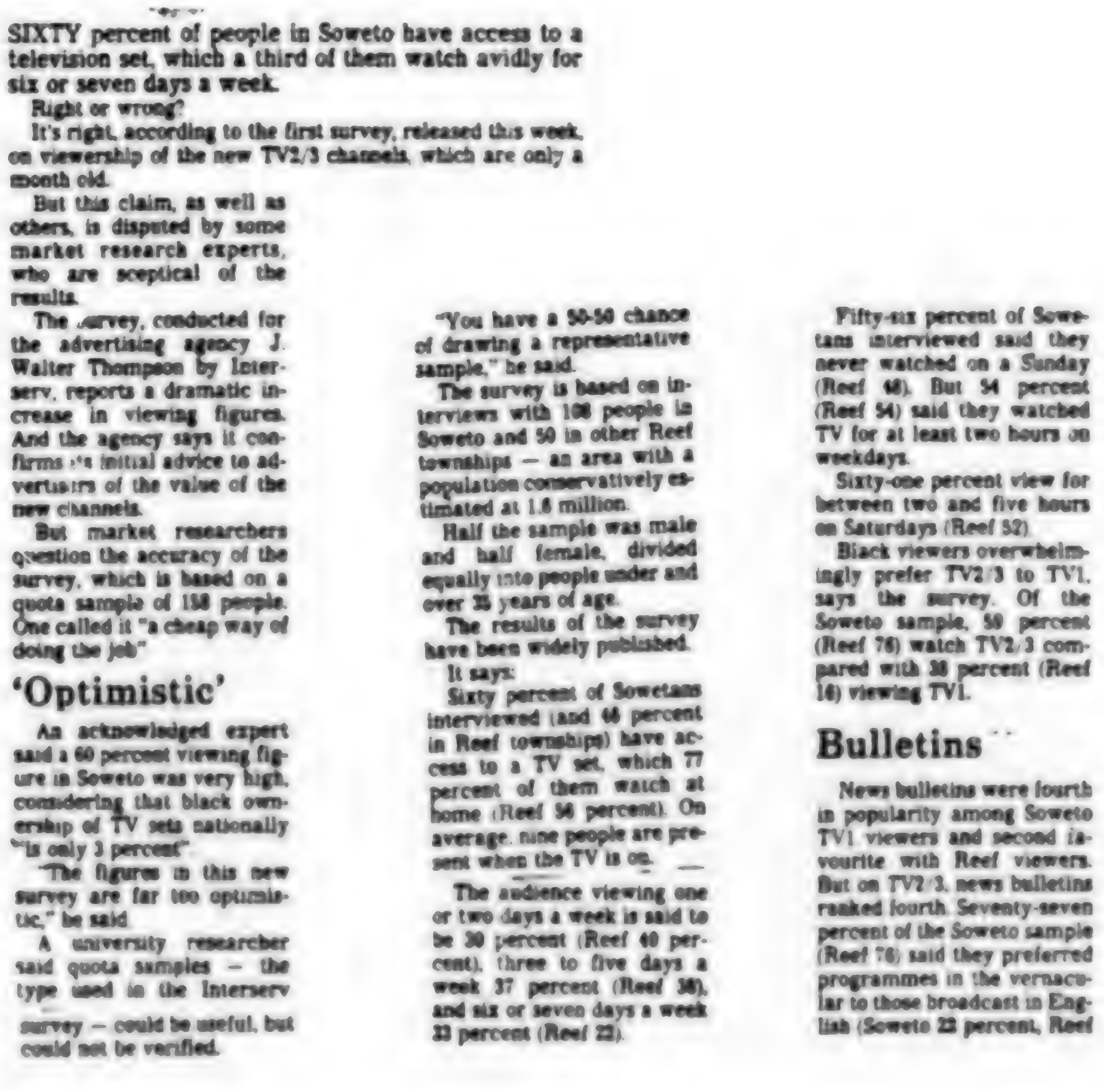
CSO: 5500/5717

VIEWERSHIP SURVEY ON TV CHANNELS 2/3 REPORTED

Johannesburg RAND DAILY MAIL in English 17 Feb 82 p 11

[Article by Stan Maher: "What's Right"]

[Text]



SIXTY percent of people in Soweto have access to a television set, which a third of them watch avidly for six or seven days a week.

Right or wrong?

It's right, according to the first survey, released this week, on viewership of the new TV2/3 channels, which are only a month old.

But this claim, as well as others, is disputed by some market research experts, who are sceptical of the results.

The survey, conducted for the advertising agency J. Walter Thompson by Interserv, reports a dramatic increase in viewing figures. And the agency says it confirms its initial advice to advertisers of the value of the new channels.

But market researchers question the accuracy of the survey, which is based on a quota sample of 158 people. One called it "a cheap way of doing the job"

'Optimistic'

An acknowledged expert said a 60 percent viewing figure in Soweto was very high, considering that black ownership of TV sets nationally "is only 3 percent".

"The figures in this new survey are far too optimistic," he said.

A university researcher said quota samples — the type used in the Interserv survey — could be useful, but could not be verified.

"You have a 50-50 chance of drawing a representative sample," he said.

The survey is based on interviews with 108 people in Soweto and 50 in other Reef townships — an area with a population conservatively estimated at 1.8 million.

Half the sample was male and half female, divided equally into people under and over 35 years of age.

The results of the survey have been widely published.

It says:

Sixty percent of Sowetans interviewed (and 46 percent in Reef townships) have access to a TV set, which 77 percent of them watch at home (Reef 56 percent). On average, nine people are present when the TV is on.

The audience viewing one or two days a week is said to be 30 percent (Reef 40 percent), three to five days a week 37 percent (Reef 38), and six or seven days a week 33 percent (Reef 22).

Fifty-six percent of Sowetans interviewed said they never watched on a Sunday (Reef 48). But 54 percent (Reef 54) said they watched TV for at least two hours on weekdays.

Sixty-one percent view for between two and five hours on Saturdays (Reef 52).

Black viewers overwhelmingly prefer TV2/3 to TV1, says the survey. Of the Soweto sample, 59 percent (Reef 76) watch TV2/3 compared with 38 percent (Reef 16) viewing TV1.

Bulletins

News bulletins were fourth in popularity among Soweto TV1 viewers and second favourite with Reef viewers. But on TV2/3, news bulletins ranked fourth. Seventy-seven percent of the Soweto sample (Reef 76) said they preferred programmes in the vernacular to those broadcast in English (Soweto 22 percent, Reef

24) or Afrikaans (Soweto one percent, Reef 0).

Forty-nine percent of Soweto viewers sampled found nothing irritating about TV1 (Reef 68). Those who did, found Afrikaans, music and English the main irritations.

A market research expert said the margin of error in a survey of this type was likely to be eight percent on any of the figures quoted — "way beyond the margin you could expect from a scientific survey".

"With a quota sample, the selection of the informants is in the hands of the interviewer," he said. It is a cheap way of doing research, but a lot of companies are doing it because scientific samples are expensive and take a lot of trouble to carry out.

"According to last year's AMPS survey by the industry, the percentage of viewers in Soweto was 8.2. In the survey, it is said to be 33 percent viewing six or seven days a week and 37 percent watching three, four or five days a week.

"No ways. It's just not a proposition as far as I am concerned. The figure cannot have gone up by 400 percent. The AMPS survey also said that only six percent of Soweto households have sets. How can viewing figures have leaped to six out of every 10 people in seven months?

"Access to a TV set in this week's survey could mean anyone visiting a beerhall. I believe this definition is so broad, you can drive a bus through it. It's a bit naughty."

Interserv, which is not listed in the telephone directory, is a new company with a staff of two, Mr Oliver Ronaldson and Ms Rita Bartlett.

Ms Bartlett, an experienced professional researcher, said she did the research in 11 areas in Soweto, as well as in areas on the East Rand.

"We did a quota sample — this was to take the hassle out of market research," she said.

Asked whether a random sample of selected homes would not have been more accurate, she said: "Yes, but then you would have to have a much larger sample — probably one of 500. That is a lengthy and expensive way of doing it."

Commercials

Mr Dick Reed, media director for J Walter Thompson, stressed that the survey was "dipstick research" and said it did not attempt to be definitive about viewing patterns.

"Because of the time factor and the fact that we have commercials being shown now, we wanted a quick assessment," he said. "We wanted to get a feel about whether people are watching or not, whether their reaction is positive or not."

Mr Reed said Interserv's raw data was interpreted by J Walter Thompson's research director, Ms Barbara Ross.

"It is logical that black viewing will now be higher," he said. "We have two new TV channels of special relevance to black viewers. Electrification in Soweto has been speeded up and marketers of TV sets have been actively pushing sales since last year, because of the new channels. There is a lot of communal viewing."

He said Interserv had been chosen because, though new, "it had not only the efficiency, but the hunger and desire to do the survey quickly".

CSO: 5500/5712

BRIEFS

UNLICENSED RADIO, TV OWNERS--Bulawayo--Nearly a thousand people are being prosecuted here for not having valid radio or television licences. The acting senior public prosecutor, Mr Felix da Silva, said the prosecutions which began on Tuesday would go on until March 2. One woman, in tears, said her husband left for Selukwe--and took the licence with him. Another said the radio was not hers. "It was left by a friend." A young man said he was served with a summons for prosecution because "the licence inspectors saw a TV aerial outside my house. The TV was not there." Asked where it was, he said it was being examined by "TV experts" as he had bought it from South Africa. "I wanted to know whether it could function here first before buying a licence. But that was when I was served with the subpoena," he said. Another man said: "I forgot. I did not think it was that serious not to have a licence." They were each fined $5. [Text] [Salisbury THE HERALD in English 26 Feb 82 p 4]

CSO: 5500/5712

EXHIBITS AT SVYAZ'-81 SHOW IN MOSCOW

Moscow AVTOMATIKA, TELEMEKHANIKA I SVYAZ' in Russian No 1, Jan 82 pp 41-45

[Article by N. Nikol'skiy: "In the World of Radio Waves and Messages"]

[Text] In the present century of the scientific and technical revolution, human life and activity is inseparably connected with an increasing flow of widely varying information. Communications channels using a powerful arsenal of technical facilities ranging from "ancient" almost to modern satellite systems are penetrating everywhere. This is evident by the international "Communications Systems and Facilities" — "Svyaz'-81" show which was held last spring in Moscow.

The Soviet Union was one of the biggest participants in this event. The variety of technical facilities in the Soviet exhibition included systems and equipment for satellite and radio relay communications, radio and troposcatter communications, television and radio broadcast.

For the Soviet Union, which occupies one-sixth of the earth's surface, the requirement for organizing communications covering such a large territory required that the Unified Automated Communications System YeASS be created. This radio electronic complex is already partially in place, and is being developed and improved in consideration of the requirements of all branches of the economy. The Unified System is being used to transmit various types of information: telephony, telegraphy, digital, facsimile; it supports radio communications and data transmission, and the dissemination of radio broadcast and television programs. The Unified System includes satellite, radio relay, cable and troposcatter communications links, and will include optical links in the future.

One of the most efficient types of communications included in the Unified System is satellite communications. Satellites are used here as relays which support communication with practically any point on the globe and near-earth space. The main advantages of these systems is the high performance and reliability of the communications channels, large capacity, the support of simultaneous communications of hundreds and thousands of subscribers on the ground, at sea and in the air, and relatively low channel cost.

The exhibits in the Soviet division of the show included models of the Ekran, Molniya-3 and Gorizont satellites. The Molniya-3 satellites, which operate in the centimeter band, have been in operation for about 7 years. The Raduga and Gorizont centimeter-band multi-trunk relays have been operating in geostationary orbit for a slightly shorter period. These satellites bear the international name of "Statsionar". These satellites are used for telephone and telegraph communications, for transmitting central television programs and newspaper columns throughout this country. The Orbita-2 satellite earth station network provides good reception and transmission quality.

The exhibits also included the Moskva-B satellite earth station which is designed for zonal television broadcast using the Gorizont satellites. This station receives television and radio programs on a 2.5-meter antenna. Television programming is relayed through an RTsTA-70R/12 relay over one of 12 USSR television broadcast channels, while radio programming is relayed through the relay facilities at the station site.

There are now 87 Orbita earth stations, about 1000 Ekran transceiving stations and 10 of Moskva stations. Thanks to satellite communications systems, more than 86% of our population can receive the first Central Television Program, and 90% of PRAVDA subscribers receive their paper the day it is published.

The Soviet section of the show also provided the opportunity for viewers to become acquainted with work in the area of Intersputnik International Satellite Communications System (MSSS). This system supports telephone, telegraph and facsimile communication, as well as transmission of television and radio broadcast programs via the Soviet Statsionar-4 and Statsionar-5 communication satellites. Earth stations have already been put into operation in the Soviet Union, Bulgaria, Hungary, GDR, Mongolia, Poland, Viet Nam, Czechoslovakia, and in Cuba and Algeria. The Intersputnik system interacts with the international Intelsat system.

The Soviet section also exhibited new developments -- the results of scientific and technical cooperation of radio specialists from many countries. The exhibits relating to the international maritime satellite system Inmarsat included the Standart-A shipboard station. This station provides round-the-clock duplex telephone and telegraph communications between subscribers aboard a vessel anywhere at sea and subscribers using the land network. The digital data rate is 1200 Baud (receiving) and 4800 Baud (transmitting). The station is automatic, and can be controlled remotely from a shore center with the help of a built-in microcomputer.

The fruitful cooperation of specialists from the USSR, the US, Canada and France within the framework of the corresponding agreement was reflected in the creation of an experimental satellite search and rescue system for vessels and aircraft in trouble. The Sarsat-ARB emergency radio buoy which was presented in the Soviet division is designed to determine the location of a platform in distress via a satellite-channel radio beacon (ARB-406) and a close-range radio beacon (ARB-121) which guides the search and rescue facilities to the platform.

The nominal operating frequency of the ARB-406 is 406.025 MHz, while that of the ARB-121 is 121.5 MHz. The devices can operate uninterruptedly for 28 and 48 hours, and consume power of 0.15 and 1.0 W, respectively.

The Unified Automated Communications System of the Soviet Union makes successful use radio relay equipment. Different stations are used on backbone and intra-zonal radio relay links. The radio relay systems used include the Elektronika-svyaz'-2 which operates in the 1.7-2.1 GHz range. This system can accommodate 720 telephone channels or color television programs with audio accompaniment. The digital Elektronika-svyaz'-500 radio relay station operates in the same range in inaccessible parts of the country. An autonomous power supply system can operate unattended continuously for at least 3 years. Each section is 200 km long with an average repeater interval of 25 km. The data rate is 2048 or 8448 kbps; the station weighs 10 kg.

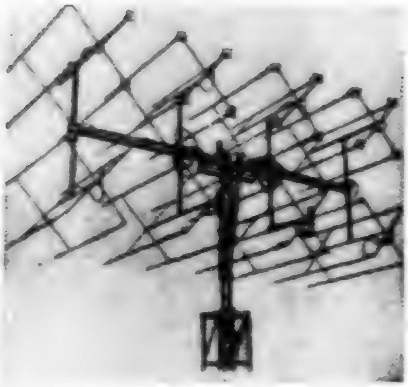
The Elektronika-svyaz'-11Ts digital radio relay system is used to arrange multi-hop PCM radio relay links. This system is made up of 15 intervals, each an average of 20 km long, and allows up to three insertions and removals of telephone channels. The data rate (20 PCM telephone channels) is 8448 kbps; the system operates in the 10.7-11.7 GHz range.

Microwave signals on mainline radio relay links are relayed in the 3.4-3.9 GHz band by the Elektronika-svyaz'-4 transceiving equipment. This system is being used to build new radio relay links, and to update existing links in order to improve the power potential and equipment reliability and reduce power consumption. This system can accommodate between 60 and 1920 telephone channels, or a single color television channel with four audio channels.

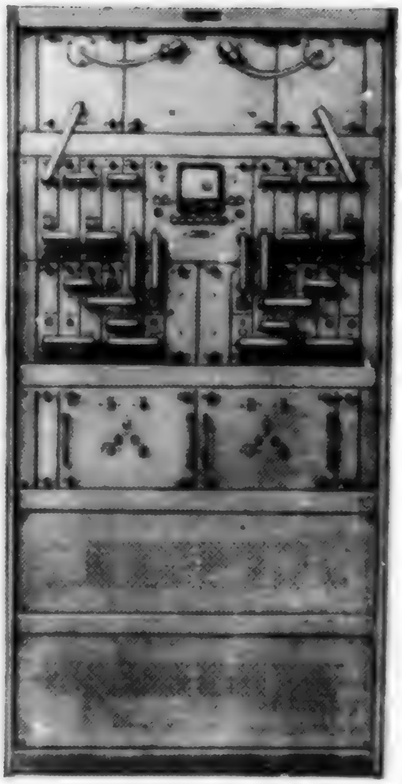
The Malyutka radio relay station is designed for arranging local stationary or temporary links up to 300 or 400 km long along construction routes and gas or oil pipelines, as well as for local communications links. This system provides the capability of connecting and switching three automatic telephone exchange trunks, five central blocking lines, two long-distance telephone lines, and two base radios; it can also be used for selective public-address communication and selective party calling. The frequency subbands occupied by the system are 150.5-151.7 and 155.5-166.7 MHz.

The Radan-II relay transceiver is used to organize a bundle of trunk lines between rural automatic exchanges. This is a PCM/FM system operating in the 10.7-11.7 MHz band.

In addition to satellite and radio relay communications, radio communications occupies an important position in the extensive arsenal of the USSR Unified System. The section on terrestrial radio communications exhibited various radios for industry and agriculture, for all types of transport, for construction, geological prospecting and weather forecasting. The characteristic features of the equipment exhibited include high sensitivity, frequency stability, increased degree of automation, the use of built-in test systems, and the extensive application of integrated circuits.



PP [expansion not given] antenna for receiving circularly polarized decimeter-band signals in Ekran-ChM television system (USSR)



The PPST 1-78 satellite television receiver is part of the Ekran-ChM system which relays television and radio programs via satellite (USSR)

The equipment exhibited at the show included the Purga-2 100 KW shortwave single-sideband transmitter. This transmitter is designed for mainline communications on Unified System links, long-range communications with foreign countries and long-range relay of broadcast programs. The Purga-2 operates in the 5-30 MHz band.

The continuous increase in the amount of mobile radio equipment (the number of such sets in the world approximately doubles every 4 or 5 years) requires continuous improvement of the systems into which it is organized, proper frequency allocation, and improvement of equipment parameters from the viewpoint of electromagnetic compatibility.

Radio equipment was exhibited extensively for widely varying branches of the national economy. This included the Viola system of ultrashort wave radios operating in the 148-149 and 172-173 MHz bands which are used for fixed-frequency simplex radio telephone and signaling with an operating radius of up to 20 or 30 kilometers.

The Aeroflot automated civil aviation communications system aroused considerable interest. This system supports the exchange of voice traffic and automatic exchange of data between aircraft crews and civil aviation ground services. The high-priority delivery time of messages in airport and route zones is 3 seconds, with lower priority delivery time of 10 and 30 seconds.

The Yadro-2 airborne shortwave radio is among the best of the modern aviation radio communications equipment. This radio is designed with hybrid and integrated microcircuits, and uses an analog-digital synthesis method for producing the frequency spectrum. The radio operates in the 2-30 MHz band; the standard output power is 400 W, with MTBF of 1200 hours.

Maritime communications facilities comprised a significant display. These included the Tsikloida and Sibir' receivers for vessels in the merchant, fishing and river fleets; as well as the Signal, which is used for audible and automatic reception of emergency signals and navigational warnings. The Yal, Bot and Poisk-R radios, as well as the Poisk-B emergency buoy, are being used in emergency rescue operations. The Nevka decimeter-band radio is being used within the river fleet system. The Leyer decimeter-band radio provides communications for workers during loading and unloading, tying up and in emergencies.

The Kolos fixed-frequency system provides duplex telephone communications without tuning over moderately rough rural terrain. This system operates in the 307-308 and 343-344 MHz bands. The Kolos multichannel system is now being used in 25 different dispatcher services.

The Soviet section of the show presented radios which are part of the Transport integrated railroad radio communications system. The radios in the Transport system support duplex and simplex radio communications, permanent and temporary radio communications, radio communications with random-access channels at large rail junctions, automatic access to the railroad automatic exchange, relay communications, communications in tunnels, etc.

The equipment in this system is based on standardized modules: transceivers, power supplies, portable and stationary control panels, and portable radio transceiver. The equipment is built with basic support constructions.

The Transport system consists of three subsystems: a train subsystem, station subsystem and repair-operational subsystem. The train subsystem supports communications between the dispatcher and locomotive engineers, between engineers aboard oncoming and following trains, and individuals involved with train operation. RS-1, RS-4, RS-6, PRM-S, RV-1, RV-2, RN-1, RN-2 radios, as well as SR-1, SR-2, SR-3 and SR-4 administrative radios are used for this.

The station subsystem supports communications between rail station dispatchers and individuals involved in technological processing of trains, and the engineers of switching and hump locomotives. The station subsystem includes RS-2, RS-3, RS-5, PRM-S, RV-4, RN-1, RN-2 and PRM-N radios.

The repair-operational subsystem is used for communications between workers in repair subdivisions and road maintenance machines with repair service dispatchers. These communications are supported by RS-4, RS-6, TsRS, RV-6, RV-7, RV-8, RN-1, RN-4, and RN-5 radios, as well as SR-3 and SR-4 administrative radios.

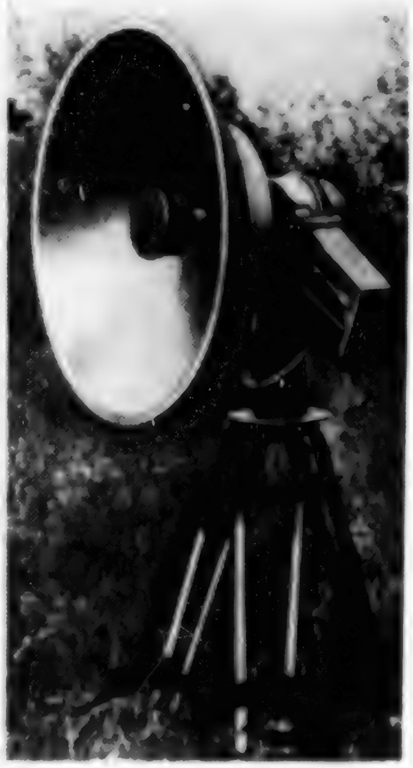
The RV-2 and RV-3 radios which were displayed are standardized to the greatest extent in terms of circuit and design treatments and electrical parameters. Each radio includes a standardized transceiver, power supply and control panel. The standardized transceiver provides the basis for all portable and stationary radios in the Transport system for both the 160 and 330 MHz bands; a device for suppressing pulsed noise is provided. The power supply provides a 12 V ±5% output from a 110, 75 or 50 V ±20% locomotive or car line; the line pulsation factor may be up to 30%.

These radios use a single-crystal frequency synthesizer with frequency modulation, and a power amplifier based on a phase-locked loop voltage-controlled oscillator. The working frequencies of the radio are formed with the help of a frequency synthesizer. Frequency stability is achieved by a temperature-compensated crystal reference oscillator. The working channels are selected and switched with the help of a special-purpose microcontroller.

The RV-2 and RV-3 radios are fourth-generation devices which use microcircuits and increased-density hybrid microassemblies.

The RN-1 radio also uses microassemblies with caseless components, transistors and integrated microcircuits. This radio can operate continuously for over 8 hours with a standby reception - receive - transmit ratio of 8:1:1. A maximum of six channels is provided, and the system operates in the 151-156 MHz band.

Elektronika-svyaz'-11Ts digital radio relay system (USSR)



Radan-II few-channel transceiving relay (USSR)

Modern television and radio broadcast technology has been created in this country. The television transmitting network includes more than 450 high-power stations and 3,000 low-power relays. Radio programming is broadcast in 137 national languages of the USSR and foreign countries for a total of 1318 hours per day, including central radio broadcasting for 384 hours per day.

Color television technology is developing rapidly. During the last five-year plan, a third-generation system of standard color television transmitting equipment was developed and put into production. This equipment makes extensive use of integrated circuits. The equipment has stable technical parameters, good performance indicators, high reliability and operating convenience. The new equipment makes it possible to expand the creating and technical capabilities of television center personnel significantly.

For the first time, domestic television equipment is using local systems for automating the maintenance of signal parameters, raster combination, automatic monitoring, new methods for video signal processing and stabilization circuits. The equipment for centralized synchronization and injecting alphanumeric characters into the picture is better than foreign analogs. The implementation of this technology considered the principle of extensive standardization of modules, devices and racks for different equipment systems.

A number of devices have also been created which make it possible to measure the "light-signal" characteristics of the circuit.

The APB-3TsT hardware programmable color television module is the basis of the stationary equipment. This device is used to form the complete television and audio signal when producing small-format studio television programs, film, slides and magnetic tape recordings. The APB-3TsT uses the SECAM system to produce the complete television signal.

The Magnoliya-80 portable color television station (PTS-TsT) is the basic television equipment used for broadcast from outside the studio. This system includes four KT-132 color television cameras. The control, sync and test video signals are multiplexed and fed to the KT-132 camera via cables. The television printer device forms a television signal containing various textual messages. It is possible to color the characters input one letter at a time. The portable color television station provides the capability for fading, introducing special effects, captions, background projection, electronic pointers, electronic clocks and textual information. Captioning and electronic back projection can be controlled remotely from the producer's panel. The Magnoliya-80 portable color television station outputs a complete SECAM television signal, and two additional low frequency programs and two video tape recordings.

The DA-2TsT two-camera announcer's color television panel and the Izmereniye-S monitoring system were also presented at the show.

The TsTS-34 digital television system is used to convert the complete SECAM color television signal to a digital stream and reduce it to 34,368 mbps, and to restore the signal as well. This system is proposed for introduction at third-generation television centers to transmit television programs over the digital channels of the tertiary hierarchy of the Unified System.

The various television equipment displayed includes a miniaturized charge-coupled device television camera which is used to produce a black and white television picture. This camera is used as part of industrial television installations for observing production processes, and in video telephones.

The PTU-56 eight-camera television installation was also exhibited. It can be used to watch several black and white monitor images of different moving and stationary objects and production processes.

DA-2TsT two-camera color television announcer's equipment (USSR)

Transmitting television broadcast equipment exhibited at the show included the ATRS 50/5 KW automated television station for bands I, II and III.

Radio broadcast equipment was represented by medium-ware radios. One of these -- the Priboy-1 -- is used for long-range broadcast and has output power of 1000 KW; the other -- the Mirazh-ET -- is used for local low-power broadcast.

The Ishim-003 receiver is used at both attended and unattended remote-controlled radio relay points. This receiver has high selectivity and noise protection in all broadcast bands.

Extensive exhibits from socialist countries were displayed at the "Svyaz'-81" show.

The Hungarian exposition included various communications equipment, instrumentation, multiplexing equipment, radio communications equipment, radio relay stations, etc. Among the equipment shown included the RP-04/32 and RP-2/120 few-channel radio relay systems, the DRF-04/M and DRF-2/2M digital radio relay equipment, GTT-80 medium-channel radio relay system, and PA parabolic antenna for the 7 and 8 GHz range.

The RP-04/32 PCM radio relay equipment operates in the 400 MHz band, and can accommodate 30 telephone channels on a link up to 800 km long. This system includes terminal stations, intermediate stations and intermediate stations with channel extraction. The equipment is used for technological communications along railroads, oil pipelines, power transmission lines, etc.

The RP-2/120 120-channel PCM radio relay equipment operates in the 2 GHz band and provides 120 telephone channels with a capacity of 4x2048 mbps over a distance of up to 800 km. This system can also be used to organize technological communications along railroads, power lines, etc.

Television camera with charge-coupled devices for color pictures (USSR)

The DRF-04/M digital radio relay equipment is used to transmit digital signals at 2048 mbps over links up to 800 km long. The working frequency band is from 390 to 470 MHz. Terminal and intermediate stations, as well as intermediate stations with channel extraction and remote monitoring of the operating status of unattended stations are available.

The DRF-2/2M digital radio relay equipment provides the capability for transmitting digital signals at 2048 mbps over distances of up to 800 km. This system operates in the 1.7-1.9 or 1.9-2.1 GHz band. Up to 16 stations can be monitored remotely when unattended stations are used.

The GTT-80 microwave radio relay equipment is used for mainline radio relay communications in the 4 and 6 GHz bands. This equipment can accommodate six or eight duplex microwave trunks, respectively, using antennas 3 or 4 meters in diameter with a waveguide length of 80 and 100 meters. A single trunk can carry 960/1020, 1260/1320 or 1800/1920 telephone channels, or a single color television channel with from one to four audio accompaniment channels.

The ultrashort wave radio equipment displayed included the FM-05-165 phase-modulated transceiver and the FM-300 and FM-400 family of FM radiotelephone transceivers.

The displays of the German Democratic Republic exhibited radio relay equipment, communications technology, alarm signaling devices, etc. The U-700 system -- a new generation of ultrashort wave radio communications devices -- was presented. Devices in this system are used to configure portable, mobile and stationary installations. The U-700 system differs from its precursor in that it is smaller and lighter, consumes less energy and has better reliability. This is achieved by using the latest technology in the area of microelectronics and modern semiconductor technology in hybrid integrated circuits. The radios in the U-700 system can operate in the 4, 2 and 0.7-meter bands.

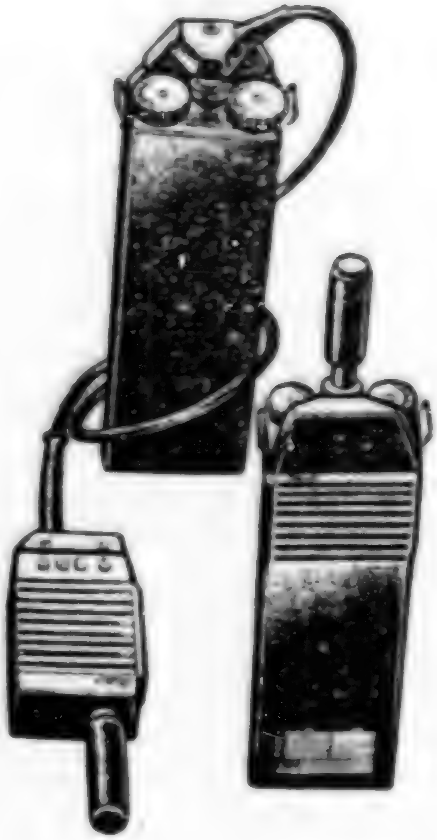
This system has been used as the basis for developing ultrashort wave train communications. This system includes stationary transceiving stations for line train communications with automatic transition to two- or four-wire lines to an adjacent station or to the devices serving the train dispatcher or stationmaster; mobile stations which are installed aboard mobile platforms and provide line radio communication; devices for stationmasters which are connected to the stationary stations via a two-wire line; a simple or automatic train dispatcher set; and a distributor with branching sections for four-wire communication of a stationary set.

The train communications system based on the U-700 allows the dispatcher to put out a common call to all locomotive engineers within a section, or to put out a coded call with the help of selective calling (train number). The engineer's aboard locomotives can also make a common call to stationmasters within their range. When a general call is made, once the engineer aboard the required locomotive has answered, the remaining mobile stations are blocked. Certain self-propelled rolling stock units can also call stationmasters. A coded message (train number) can be transmitted from the locomotive engineer to the dispatcher, as well as an emergency signal. The emergency signal is received by the dispatcher, stationmaster and engineers aboard locomotives located within the transmission zone.

DRF-04/M digital radio relay equipment (Hungary)

This system supports radio communications for the locomotive engineers through the stationary station, as well as directly between the engineers of two adjacent locomotives. There is a provision for an engineer to call the dispatcher, and for the dispatcher to place a priority call to the engineer in emergencies. The system provides access to the telephone network serving the railroad.

The technical devices exhibited by Bulgaria included the Len radio, which is part of a new series of radios designed for two-way communications in dispatcher systems used in different branches of the economy. This radio is based on modern semiconductor components, and uses logical light readout which provides information about five conditions, including information about malfunctions in the antenna feeder system. The transmitter has output power of 8-10 W, and the receiver sensitivity is at least 0.7 μV.



NR3045 portable UHF radios with separate (MUP=UA) and built-in (MUP=UF) speaker-microphones (SONAB Company, Finland)

A great deal of different technology was exhibited by Czechoslovakia, Poland and Yugoslavia. This includes transceiving equipment, television devices, radio relay systems, high frequency equipment, radios, communications systems, etc.

The collective booth from France displayed long-range communications facilities, electronic equipment for satellite communications, equipment for data transmission over radio relay links, and instrumentation.

Radiotelephone systems, portable radios, radio measurement equipment and diagnostic equipment were included among the exhibits presented by Finnish firms.

Companies from the Federal Republic of Germany demonstrated equipment for communication with mobile platforms, radio link equipment, instrumentation, electroacoustic equipment, studio and radio broadcast equipment, shipboard radio communication, cathode-ray tubes, radio tubes and semiconductor devices.

The exhibit from Great Britain included television equipment, radio search and radio calling equipment with noise suppression, communications technology, etc.

The booths from the United States exhibited mobile television installations, domestic radio equipment and testing/measuring equipment.

Japanese firms presented equipment for satellite communications, microwave transmitters, video projectors, television monitors, amplifiers and loudspeakers, as well as radio and television equipment for high quality recording.

The "Svyaz'-81" international show held under the banner "Communications Facilities in the Service of Society and Man" enriched the participants with new ideas, provided an impulse for the creative energy of engineers and scientists, and opened up new possibilities for human intelligence. This show will serve all of the peoples of the earth in the fight for peace and progress.

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USSR

COMPARISON OF PARAMETERS OF CABLE AND RADIO RELAY CIRCUITS

Moscow, VESTNIK SVYAZI in Russian No 12, Dec 81 pp 25-26

[Article by N.E. Popova, Candidate of Technical Sciences, Department Chief, Central Scientific-Research Institute of Communications, I.N. Kolobova, Deputy Laboratory Chief, and Ye.V. Koroleva, Engineer]

[Text] The YeASS [Unified Automatic Communications System] primary backbone network is now based on FDM transmission systems organized over cable and radio relay links; the complex network circuits include both cable and radio relay sections. Research was conducted separately on cable and radio relay circuits in order to compare their characteristics (data presented in table 1).

Comparisons were made of the following parameters: overall attenuation, noise power, pulsed noise at -15 dBO threshold analysis; transient interruptions at -18 dBO analysis threshold; frequency fluctuation of transmitted signals; and amplitude response.

The measurements were made using a prototype KAI-2 "Automated Research Complex" which allowed simultaneous measurement of 8 voice grade channel or network circuit parameters (the special calculator in this system processes each hour's measurements). The following production devices were used in parallel for backup: UNP-60, bay level meter, and MR-61. Voice grade channel measurements were made on an individual equipment bay at the 4 dBO point (receive) and -13 dBO (transmit) continuously over a period of 3 days for each circuit during April and November 1979. The parameters of the primary network circuits were measured at high impedance at the PPPG [expansion not given] "In" jack of the USPP [expansion not given] (-45 dBOn), and the PPrPG [expansion not given] "Out" jack (-12 dBOn) over a period of three months on the cable and radio relay circuits. Readings were taken during the day (from 0900 to 1600) every minute and every 15 minutes, and every 15 minutes at night (from 1600 to 0900).

The findings were processed over three-day and three-month intervals, with the following being computed: statistical parameters of overall attenuation; average hourly noise power; average hourly multichannel signal power; total amount of time noise exceeded -15 dBO threshold for an hour; total transient hourly interruption time at -18 dBO analysis threshold.

Table 1

Total length, km	Number of terminal points	Number of tandem mastergroups	Number of tandem supergroups	Number of tandem groups	Transmission system
2209 cable circuit	2	1	2	1	K-1920V K-1920
2029 radio relay circuit	2	2	3	-	VLT-1920 K-1920V (227 km) R-600 2M

Table 2

Channel	Statistical parameters of overall attenuation, dB		
	σ, dB	a_{max}	$a_{ac} - a_{nom}$
Cable	0.3	1.3	0.5
Radio relay	0.7	1.7	0.2
Standard	1.0	2.2	0.5

Table 3

Psophometric noise power during peak load hours, pWOp

Channel	Hourly average	Minute average for over 20% of measured time	Minute average for more than 0.1% of time
Cable	4000	4480	7840
Radio relay	16999	18930	28728
Standard cable	4000		
radio relay	8500		

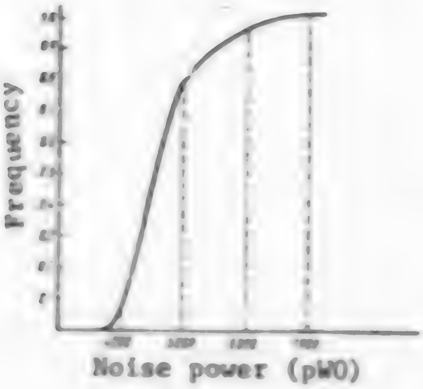

Figure 1. Integral distribution function of average minute-by-minute values of unweighted noise in voice-grade channel during peak load hours on cable circuit (March 1979).

Comparison of the findings indicated that the stability of the overall attenuation of a cable channel is twice that of a radio relay channel (table 2), and the average hourly psophometric noise power of the composite radio relay group circuit failed to satisfy the standards, and was four times the noise of the composite cable circuit (table 3).

Figures 1-4 show the integral and differential distribution functions of the average minute-by-minute noise values during peak load hours of a voice grade cable and radio relay channel.

Concurrently with measurement of the voice grade channel noise, the transmitted multichannel signal power in the group circuits of cable and radio relay links was monitored at the "In" jack of the USPP (-45 dB0n). As the measurements indicated, the average hourly power of a multichannel group signal does not exceed 1mW 98% of the time.

The percentage of hours during which there is pulsed noise exceeding the standard is between four and five times greater for the radio relay channel than for the cable channel; this percentage amounts to 9-33.8% of the measurement time. Noise exceeding the standard were observed for a maximum of 6.5% of the observation time in the cable channel. It should be noted that pulsed noise was observed both at night and during the day.

The number of hourly sessions with transient interruptions (less than 300 msec) exceeding the standard is 5.7 times greater in the radio relay channel than in the cable channel (the radio relay channel failed to meet standards during 49% of the hourly segments, while the cable channel failed to meet standards for 8.6% of the total number of measurement hours).

In the radio relay network circuit, the number of hourly sessions containing transient interruptions shorter than 300 msec amounted to as much as 9% of the measured time (3 months), which is three times more than for the cable circuit.

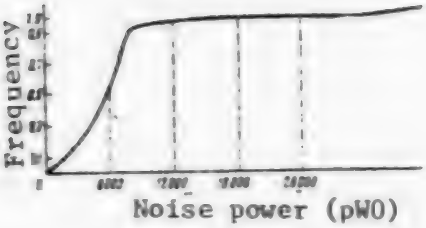

Figure 2. Integral distribution function of minute-by-minute unweighted noise in radio relay voice grade channel during peak load hours (March 1979)

An interruption lasting more than 300 msec is called a failure. Most radio relay circuit failures (9%) last between 300 msec and 2.5 minutes. The mean time between failures is 2 times longer for the cable circuit than for the radio relay circuit.

The amount of frequency variations in the voice grade channels carried over cable and radio relay circuits meet the standards, and does not exceed 1.35 Hz (the standard is 2.24 Hz).

The amplitude response of the voice grade channels meet existing standards.

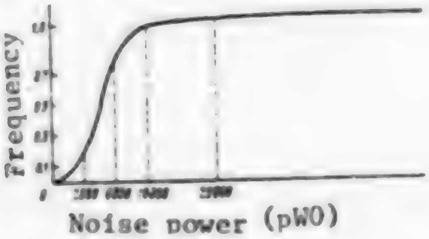

Figure 3. Integral distribution function of minute-by-minute unweighted noise values in cable circuit voice grade channel during peak load hours (November 1979)

Comparison of the parameters of composite network group circuits in the cable and radio relay systems indicated that all of the parameters of the cable composite group circuit satisfy existing standards with a considerable margin. All of the parameters of the radio relay composite group circuit satisfy the draft standards, except for the average hourly psophometric noise power. Such parameters as pulsed noise, transient interruptions and failures lasting more than 300 msec are significantly poorer for the radio relay composite group circuit than for the cable circuit.

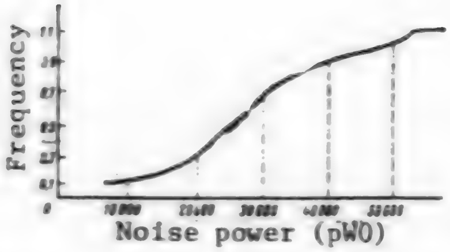

Figure 4. Integral distribution function of minute-by-minute average unweighted noise value in radio relay circuit voice grade channel during peak load hours (November 1979)

Comparison of the parameters of the radio relay and cable circuits revealed that the performance of the radio relay circuit is at about the level of a 1970 cable circuit. Work which has been done during the past 10 years on wire communications facilities has significantly improved their quality, which is confirmed by the measurement data from the cable circuits. This improvement has been achieved primarily by improving the performance of the guaranteed power supply equipment, improving automated gain control, introducing checks for bad contacts, replacing individual devices and parts, etc.

Improvement of the reliability and quality of radio relay communications requires that operational personnel work in conjunction with the Scientific-Research Institute of Radio, which will undoubtedly produce a beneficial effect.

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SWEDISH SPACE FIRM CHIEF DISCUSSES SATELLITE DEVELOPMENT

Stockholm SVENSKA DAGBLADET in Swedish 16 Feb 82 p 23

[Article by Sophie Petzell]

[Text] "Satellites are dirt cheap. You do not get rich building them, but you do get rich using them." This was said by ececutive vice-president Fredrik Engstrom of the state-owned Swedish Rymdbolaget aerospace company.

His enthusiasm for the Swedish space project is matched only by that of Industry Minister Nils Asling. The industry minister believes that the satellite programs are of great benefit not only for Swedish and Nordic industry. They also will contribute considerably to the decentralization of society.

"Ideology has won a victory over cultural conservatism," he said in reference to the probability that the Nordic Tele-X project with data and TV channels will become reality.

Ground Most Important

Both believe that while it is important for Swedish industry to participate in the development of satellites, the most important aspect for industry is ground facilities. They require large investments. The satellites' data service customers also will share large economic and organizational advantages.

Today there is not one Swedish or partly Swedish-owned satellite in space, but it will not be long before the first one is launched. In 10 years five Swedish or Nordic satellites may be in orbit.

The first will be the completely Swedish Viking, which is purely a research satellite. The Viking will be launched in 1984 with the European Ariane 2 rocket to an extremely high orbit--up to 15,000 km. The primarily French Spot satellite will be launched with the same rocket. Almost 5 percent of this satellite is owned by Sweden, however. Spot will take pictures of the earth's surface from an altitude of 820 km.

Viking is a relatively cheap satellite--it costs "only" about 100 million kronor. Saab-Scania and other Swedish companies produced the equipment for the satellite, while the American Boeing Corp. produced the platform on which this equipment will be mounted.

Nordsat Buried

In 1986 Ariane 3 will be launched into space and Tele-X is already booked for the flight. Plans for the old Nordsat have been quietly buried, while the Industry Ministry, the National Telecommunications Service, the State Aerospace Commission, and Rymdbolaget, along with the aerospace industry, produced plans for Tele-X.

The satellite will cost a total of about 650 million kronor and will be constructed by Swedish, Finnish, and Norwegian industry on a platform produced by the French Aerospatiale Company, among others. Nordic industry is responsible for one third of the 650 million.

In exchange for the agreement with Aerospatiale, Sweden was given favorable terms. Saab-Scania and LM Ericsson have received equipment orders for 6 to 8 percent of the value of the satellites now planned by a German-French group which includes Aerospatiale, MBB, and AEG-Telefunken of Germany, as well as Thomson CSF of France. The group believes that about 200 civilian communications satellites will be launched outside the United States before the end of the century. The group intends to corner half this market and Saab-Scania and LM Ericsson have a good chance of being included.

A week or so ago it became clear that Finnish and Norwegian industry would participate in the Tele-X project. Denmark declined long ago. Industry Minister Nils Asling will present a proposal to parliament on Tele-X in the near future.

What can he offer the Swedish people in exchange for investments?

Tele-X can broadcast TV programs in the eastern Nordic countries and transmit information and data.

It will be located at an altitude of 36,000 km and remain over the same spot on earth for many years. Thus, it will follow the rotation of the earth and be what is called geostationary.

Tele-X can receive signals from earth and retransmit them. The satellite will have four types of communications equipment:

High-speed data that can transmit text and facsimile, but also data from and to computers. This equipment also can transmit wireless telephone conversations.

Two TV channels may be transmitted simultaneously direct to the home of the receiver.

Equipment to determine experimentally how high the frequencies may be that are used by telecommunications satellites over the Nordic countries. Results of these measurements later will determine the design of Nordic telecommunications satellites for the future.

A system that can transmit signals from trucks and trains, for example, to communications centers in the Nordic countries. It is uncertain, however, whether this modern version of the mobile radio actually will be placed in Tele-X.

Satellites

A satellite has a lifetime of 5 to 7 years. Geostationary satellites are not completely stationary. They gradually glide in the direction of the Indian Ocean, since the force of gravity is stronger there. Thus, the satellites must be replaced. The Industry Ministry and other organizations involved foresee an increased need for new satellites as we learn to utilize the services they offer.

A replacement for Tele-X is being planned already. Current plans are for three satellites that could be launched in 1988, 1990, and 1991. The three could have functions similar to Tele-X, but the emphasis may be shifted from data transmission to TV transmission, according to need.

Both Nils Asling and Fredrik Engstrom are convinced that the need exists and is increasing.

Simpler Ground Equipment

There will be many fields of application, according to Fredrik Engstrom.

"We are in a rapidly expanding field. At present, we are not even aware of all the possible applications of satellites."

Since satellites are becoming more and more technically advanced, relatively simple technical equipment may be used on the ground. Companies that produce earth stations are counting on a large market.

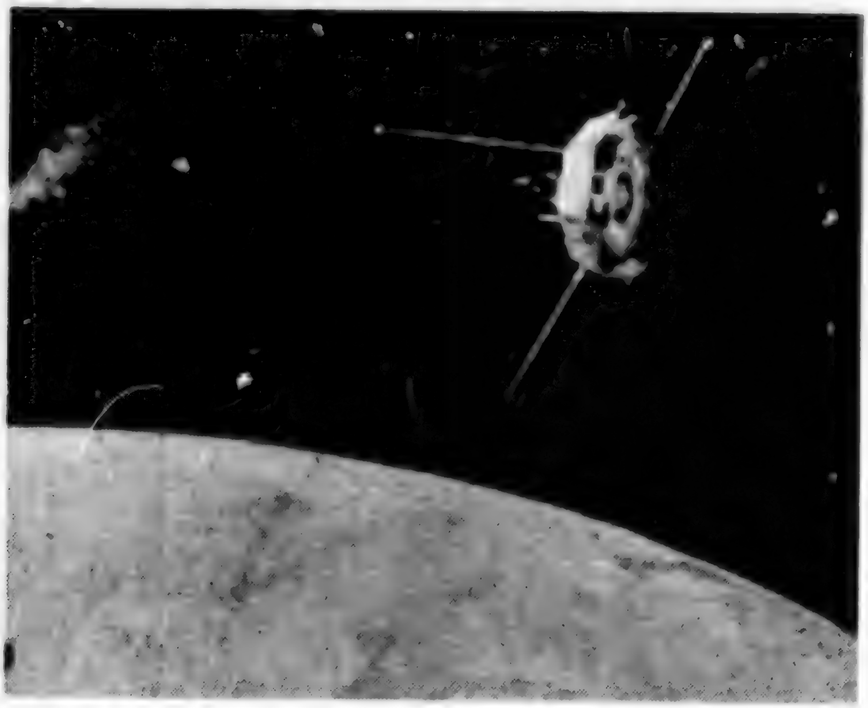
LM Ericsson and the Norwegian company Elektrisk Bureau (EB) recently signed an agreement for cooperation on a 50 - 50 basis in this area. The companies believe that the Nordic ground station market alone will be worth at least 1.5 billion kronor through the end of this century.

At that time, there will be between 5,000 and 10,000 stations here in two sizes. Simple stations will be used for companies. They will be equipped to handle telefax, video conferences, but primarily text and data transmission. This type of station costs about 200,000 kronor. The larger stations costing 2.5 million kronor also may be used for transmitting maps, graphic material for remote printing of newspapers and analysis of pictures. LM and EB hope that eventually they will be able to compete internationally with ground stations.

Political Decision

EB probably will be responsible for the large station monitoring all trafic to and from Tele-X. This station will handle customer accounts, among other things, and will be built outside Stockholm.

The role of future satellites in transmitting TV programs is still unclear. The politicians first must reach an agreement, but however they are used, the market for parabolic antennas at Swedish homes will grow, now that German and French broadcasts are reaching Sweden.



Artist's rendering of the first completely Swedish satellite, the Viking, in orbit around the earth.

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LM ERICSSON PREPARING NEW TELECOMMUNICATIONS PRODUCTS

Stockholm SVENSKA DAGBLADET in Swedish 16 Feb 82 p 25

[Article by Johan Myrsten]

[Text] While the money is rolling in from the many AXE stations that have been sold throughout the world, LM Ericsson is making large investments in several areas. These include not only information technology for the office, but also turnkey network construction projects, electronic components, and systems expertise.

The parent company in the Ericsson group, which dropped the famous initials LM at the beginning of the year, presently is showing a "clear profit," according to information director Nils Tengberg. Several subsidiaries, including those in France and Spain, are experiencing problems, however.

How high profits are will not be revealed until the end of March. The report for the first 9 months of 1981 showed a profit of 601 million kronor before balancing provisions, which was 5.6 percent of invoices totaling 10.672 billion. This is only a 0.2 percent larger margin than for the same period in 1980--and 2.1 percent lower than the margin for all of 1980.

Nevertheless, the AXE stations apparently are providing high profits at present. According to Nils Tengberg, production of the fast-selling telephone stations has progressed so far that their manufacturing process has been highly rationalized.

The AXE revenues will not only provide returns on previous investments in the AXE system. They also will contribute to the high investments that characterize the Ericsson group today.

Office Enticing

The largest and presently most publicized investments involve the company's entry into the office automation and communications equipment market, with the help of the former Datasaab in the newly formed subsidiary Ericsson

Information Systems (EIS). The entry into this new market will be a demanding test for Ericsson, which must learn to sell to private customers instead of a few large telecommunications services. The enticement is the large market, estimated at about 200 billion kronor in 1985, and its rapid growth, estimated at 15 percent annually. (A detailed description of EIS was published in SVENSKA DAGBLADET on 12 January.)

Turnkey Contracts

The newest and so far least publicized effort is a further development of Ericsson's traditional activity, namely the delivery of turnkey network construction projects in the areas of telecommunications and railway signaling. This is a type of contract work based partly on Ericsson's expertise in systems construction in these areas and partly on the experience the group has gained from the large-scale project in Saudi Arabia. The Saudi order included everything from telephone stations to network facilities. At one time 6,000 Koreans from the Dong Ah construction company were excavating and installing lines for Ericsson and Philips in Saudi Arabia.

"This area deserves more attention. The need for overall contractors for local networks is increasing rapidly, especially since this is becoming a larger and larger part of total costs within public telecommunications networks. But Ericsson also intends to go beyond its traditional circle of customers. New customer categories include oil and pipeline companies which are in great need of private telecommunications networks at their installations, as well as defense authorities and railroad companies," said Bjorn Linton, head of this new area of business.

Projects of this type should be able to double their sales within a 5-year period, to about 2 billion kronor.

In addition to the order in Saudi Arabia, Ericsson also has large turnkey contracts with Libya, Iraq, and Australia. The Iraqi contract was signed in November and is valued at 1 billion kronor, although this figure could increase in the future.

Industrial Electronics

A third important but little publicized effort is the development and production of electronic circuits and other components in the subsidiary RIFA. The purpose is not only to provide Ericsson with equipment and components, but also to enter the industrial electronics market, described as "an extremely important, slumbering market of the future." The goal is to make RIFA "one of the leading component companies in Europe."

Ericsson's fourth area of interest is the accumulation of broad systems expertise. Such expertise, which is at a premium in the computer world, will include several program warehouses, such as Ericsson Programmatics.

With all deference to these new fields of endeavor, however, the most important activity for many years to come will involve telephone stations. The Ericsson management still is extremely optimistic about the future of the AXE and is counting on winning a larger share of the market from competitors. Increased sales are estimated at 8 to 10 percent annually in terms of volume, which is somewhat greater than the increase in the world market.

Technological Lead

The total value of all AXE stations ordered and installed to date is estimated by the sales manager for public telephone stations, Knut Albertsson, at about 9 billion kronor. At the beginning of this year there were 150 AXE stations (including 15 in Sweden), corresponding to 1.25 million lines, operating in 22 countries. An additional 300 stations (including 15 in Sweden), corresponding to 3.25 million lines, have been ordered and 11 new countries are among those ordering stations. The order to Saudi Arabia is for 600,000 lines from Ericsson, or 15 percent of all AXE stations that have been ordered.

"Our estimation of the competition is that we hold a technological lead over our most serious competitors, Siemens and ITT. They do not yet have a telephone station of the latest generation in operation," Knut Albertsson said.

"This means a 2 to 3 year lead. We will maintain our lead for several years more, since we now are preparing to offer additional services."

These include three new applications of AXE:

Large international interurban stations with the possibility of trafic via satellites. The first will be in operation in Sweden in 1983.

Smaller stations for rural areas with perhaps 1,000 lines.

Mobile telephony, with the new Nordic network as a first example.

Force Price Down

Among the most serious competitors, Knut Albertsson also includes CIT-Alcatel of France and Hitachi, Fujitsu, and Nippon Electric of Japan, all of which offer low prices and favorable loans.

"In individual deals prices are forced down. This occurs when the companies are attempting to establish a market by receiving an order."

Ericsson is bidding on telephone stations in the United States, Great Britain, Greece, Hungary, South Korea, Indonesia, and elsewhere.

The following is a summary of Ericsson's other activities:

Cable is somewhat of a problem area with reduced demand for telecommunications cable as a result of new technology.

Military electronics (radar, semiconductor technology, radio relay and satellite systems, missile electronics, and communications) is seen as "an interesting field from a market standpoint."

Mobile telephone systems and personal paging systems are seen as strong products, while traditional mobile radio systems are experiencing much more sluggish growth.

Signaling and control systems for railroads are in demand.

Computerized timing devices also are in increasing demand.

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BRIEFS

FIRST ERICSSON TELETEX ORDER--Ericsson Information Systems AB has received an order from the National Telecommunications Service for teletex equipment valued at about 40 million kronor. Among other things, the order includes a large number of Eritex 10's, one of Ericsson's new products for office automation with teletex communications. Deliveries will begin during the fall of 1982. This is the first large order of the new Eritex family of products from Ericsson Information Systems. For this reason, the order from the Telecommunications service is seen as an important reference for future marketing of the company's products abroad. [Text] [Stockholm SVENSKA DAGBLADET in Swedish 16 Feb 82 p 25] 9336

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